

# Notice of Allowability

Application No.

10/527,053

Examiner

LaTanya Bibbins

Applicant(s)

TAKAKI ET AL.

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicant arguments filed on 13 March 2007.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

WAYNE YOUNG  
SUPERVISORY PATENT EXAMINER

***Response to Arguments***

1. Applicant's arguments, filed March 13, 2007, with respect to claims 1-20 have been fully considered and are persuasive. The 35 U.S.C. 102(e) rejections of claims 1-2, 4-9, 11-12, 14-19 and the 35 U.S.C. 103(a) rejections of claims 3, 10, 13 and 20 have been withdrawn.

***Examiner's Amendment***

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

**In the Abstract:**

Cancel the abstract, submitted on 2 separate pages of an amendment filed on March 9, 2005, and insert the following:

**ABSTRACT**

An object of the present invention is to provide a wavefront aberration correcting device comprising a liquid crystal device that maximizes transmittance and minimizes light transmittance fluctuations even when the liquid crystal is driven by voltage. Disclosed is a wavefront aberration correcting device for correcting a wavefront

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aberration of light generated in an optical path of an optical system for irradiating light onto a recording medium or guiding the reflected light reflected by the abovementioned recording medium is characterized in that it comprises a pair of opposing transparent electrode layers provided in the abovementioned optical path; and a liquid crystal sandwiched between the abovementioned transparent electrode layers, for generating phase change in passing light due to voltage applied to the abovementioned transparent electrode layers, the abovementioned transparent electrode layer is arranged on an antireflective body comprising a substrate, and a finestructure formed on a substrate and having a concave-convex structure.

**Comments:**

The abstract was submitted on 2 separate pages of an amendment filed on March 9, 2005.

***Allowable Subject Matter***

3. Claims 1-20 are allowed.
4. The following is an examiner's statement of reasons for allowance:

**Regarding claims 1-20**, none of the references of record, alone or in combination, suggest or fairly teach a wavefront aberration correcting device or an optical pickup device comprising a wavefront aberration correcting device comprising a pair of opposing transparent electrode layers provided in the optical path; and a liquid crystal sandwiched between the transparent electrode layers, the liquid crystal

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generating phase change in passing light due to voltage applied to the transparent electrode layers, **wherein at least one of the transparent layers is arranged on an antireflective body comprising a substrate, and a finestructure which is formed on the substrate and which has a concave-convex structure** in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. .

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### ***Citation of Relevant Prior Art***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**Ooi et al. (US Patent No. 5,754,260)** discloses a reflection type liquid crystal optical element where it is preferable to form a minute concave-convex portion at the interface to an ITO-electrode of the front electrode substrate and to form a reflecting layer between the back electrode substrate and a liquid crystal and solidified matrix composite. Specular reflection at the interface may be reduced by forming a multi-layered antireflection film in which ITO is used as a constituent. In order to form the uneven portion i.e. minute concave and convex for the purpose described above, it is preferable to form a saw-like portion having a small flat plane and having many slant planes

**Hikmet (US Patent No. 6,014,197)** discloses an electro-optical device wherein orientation layers have grating structure and comprises birefringent material with refractive indices equal to electro-optic medium.

**Sakata (US Patent No. 4,729,640)** discloses a liquid crystal light modulation device comprising a pair of substrates at least one of which is transparent, a diffraction grating formed between or on at least one of the substrates, a liquid crystal arranged between fine grooves of the diffraction grating, and control means for changing the orientation of the liquid crystal which has been oriented in a predetermined state by the grooves of the diffraction grating.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaTanya Bibbins whose telephone number is (571) 270-1125. The examiner can normally be reached on Monday through Friday 7:30 am - 5:00 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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